Abstract

A fast image region partition method receives a component labeled image and performs a two pass Zone Of Influence (ZOI) creation method to create a Zone Of Influence (ZOI) image. The two pass ZOI creation method performs a first pass scan to create a first pass intermediate distance image and a shortest distance component label image. It then performs a second pass scan using the first pass intermediate distance image and the shortest distance component label image to create a background distance transform image and a updated shortest distance component label image. An adaptive image region partition method receives a component labeled image and performs an adaptive two pass ZOI creation method to create an adaptive ZOI image. The distance lengths of the two pass adaptive ZOI creation method depend on their associated component labels.

An adaptive cell segmentation method receives a nuclei mask image and a cell mask image. It performs adaptive nuclei region partition using the nuclei mask image to create adaptive nuclei mask ZOI. An adaptive cell region separation method uses the cell masks and the adaptive nuclei mask ZOI to generate adaptive cell separated regions.

An adaptive dilation method receives an image and performs an adaptive background distance transform to create an adaptive background distance transform image. A threshold is applied to the adaptive background distance transform image to generate adaptive dilation image output. An adaptive erosion method receives an image and performs an adaptive foreground distance transform to create an adaptive foreground distance transform image. A threshold is applied to the adaptive foreground distance transform image to generate adaptive erosion image output.

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